

CLAIMS

1. A waster treatment system comprising a trivalent coagulant source fluidly connected upstream of a secondary treatment stage.
- 5 2. The wastewater treatment system of claim 1 wherein the trivalent coagulant comprises an aluminum salt.
3. A method of treating wastewater comprising adding a trivalent cation prior to
10 flocculating sludge in a wastewater treatment facility.
4. The method of claim 3 wherein the trivalent cation facilitating coagulation of biocolloidal material to form flocculent material.
- 15 5. A method of treating wastewater comprising adding a trivalent aluminum salt to wastewater to be treated prior to bacterial treatment, forming a flocculated sludge and dewatering the sludge.
6. The method of claim 5 wherein the trivalent aluminum salt is added in an amount
20 such that a ratio of the equivalents of any monovalent cations to any divalent cations relative to the mass of trivalent aluminum salt per mass of solids is less than about 1.0.
7. A method of treating wastewater comprising:
adding a trivalent cation to the wastewater; and
25 forming a flocculant material while maintaining a $(M/D)/T$ ratio of less than about 1.0,
wherein M represents monovalent cation equivalent concentration in the wastewater, D represents divalent cation equivalent concentration in the wastewater and T represent the mass of the trivalent cations in the flocculent material.
- 30 8. A method of treating wastewater comprising:
adding a trivalent cation to the wastewater; and
forming a flocculant material while maintaining a M/T ratio of less than about 1.0,

wherein M represents monovalent cation equivalent concentration in the wastewater and T represent the mass of the trivalent cations in the flocculent material.

9. A method of facilitating wastewater treatment comprising providing a trivalent
5 cation to a wastewater treatment system for coagulating biocolloidal material.
10. A method of facilitating wastewater treatment comprising supplying a trivalent cation to a wastewater treatment system in a quantity and at a location selected to affect coagulation of biocolloidal material.
- 10 11. A method of facilitating the coagulation of biocolloidal material in a wastewater of a wastewater treatment system comprising providing a trivalent cation to the wastewater treatment system.